CLAIMS

1. A leaching device, comprising:

a motor;

a receptacle rotatably coupled to the motor and configured to receive a sample container, the receptacle rotatable via a first shaft;

a plurality of ultrasonic transducers attached to the receptacle and rotatable via a second shaft arranged opposite to the first shaft across the receptacle, such that the ultrasonic transducers are rotatable with the receptacle;

an ultrasonic generator coupled to the ultrasonic transducers and operable to energise the ultrasonic transducers to radiate ultrasonic waves to sonicate a sample in the sample container received in the receptacle; and

a controller configured to control operation of the motor and the ultrasonic generator, wherein the motor and the ultrasonic generator are simultaneously operable.

2. The leaching device according to claim 1, wherein the ultrasonic transducers are distributed along a length of the receptacle and perpendicularly to the second shaft.

3. The leaching device according to claim 1 or 2, wherein each of the ultrasonic transducers is operable at a frequency of between about 10 kilohertz (kHz) and about 200 kHz.

4. The leaching device according to any one of the preceding claims, wherein each of the ultrasonic transducers has a power requirement of between about 0.01 watts (W) and about 1000 W.

5. The leaching device according to any one of the preceding claims, wherein the ultrasonic transducers are operable to sonicate the sample for a sonication period of between about 1 second (s) and about 10 hours (hr).

6. The leaching device according to any one of the preceding claims, wherein the motor is operable to rotate the receptacle at a rate of between about 0.1 revolutions per minute (rpm) and about 500 rpm.

7. The leaching device according to any one of the preceding claims, wherein the motor is operable to rotate the receptacle for a duration of between about 1 minute (min) and about 24 hr.

8. The leaching device according to any one of the preceding claims, further comprising a touchscreen electronically connected to the controller and configured to receive setting inputs to control the operation of the motor and the ultrasonic generator.

9. The leaching device according to any one of the preceding claims, further comprising a memory coupled to the controller and operable to store earlier settings of the motor and the ultrasonic generator.

10. The leaching device according to any one of the preceding claims, further comprising:

a housing enclosing the motor, the ultrasonic generator and the controller;

a temperature sensor received in the housing and operable to monitor an operational temperature within the housing; and

a fan received in the housing and operable to cool an interior of the housing when the operational temperature exceeds a predetermined threshold temperature.

11. The leaching device according to any one of the preceding claims, wherein the receptacle comprises:

a body having a first screw thread on an inner surface of an open end of the body; and

a cover in a separable threaded connection with the body.

12. The leaching device according to claim 11, wherein a pitch of the threaded connection is between about 0.2 millimetres (mm) and about 10 centimetres (cm).